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Botanical Gazette.

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Editorial.—THE MONTHLY INDEX, published at 10 Spruce St., New York, is an exceedingly convenient publication. In it we have each month a complete classified list of the periodical literature of every department of thought, except fiction. Looking under the appropriate heading a botanist can find all that has been published the previous month relating to his own science, and can thus procure whatever is of special interest.

SIR JOHN LUBBOCK, in his inaugural address as presiding officer of the recent meeting of the British Association, made the following remarks in illustration of the progress of the Science of Botany in the last half century: "Some of the most fascinating branches of botany—morphology, histology, and physiology—scarcely existed before 1830. In the two former branches the discoveries of von Mohl are pre-eminent. He first observed cell-division in 1835, and detected the presence of starch in chlorophyll-corpuscles in 1837, while he first described protoplasm, now so familiar to us, at least by name, in 1846. In the same year Amici discovered the existence of the embryonic vesicle in the embryo-sac. The existence of sexual reproduction in the lower plants was doubtful, or at least doubted by some eminent authorities, as recently as 1853, when the actual process of fertilization in the common bladderwrack of our shores was observed by Thuret, while the reproduction of the larger fungi was first worked out by de Bary in 1863. As regards lichens, Schwendener proposed, in 1869, the startling theory, now however accepted by some of the highest authorities, that lichens are not autonomous organisms, but commensal associations of a fungus parasitic on an alga. With reference to the higher Cryptogams it is hardly too much to say that the whole of our exact knowledge of their life history has been obtained during the last half century. Thus in the case of the ferns the male organs, or antheridia, were first discovered by Nageli in 1844, and the archegonia, or female organs, by Suminski, in 1848. The early stages in the development of the mosses were worked out by Valentine in 1833. Lastly, the principle of alternations of generations in plants was discovered by Hofmeister. This eminent naturalist also, in 1851–4, pointed out the homologies of the reproductive processes in mosses, vascular cryptogams, gymnosperms and angiosperms.

BARON FERD. VON MUELLER has sent to Kew Gardens a living specimen of his recently described Australian Cycad, *Macrozamia Moorei.* The stem sent is four feet high, five and a half feet in circumference, and weighs six hundred pounds. Specimens have been seen twenty feet high and six feet four inches in circumference, with cones two to three feet long, and leaves seven feet long. For a Cycad this is most remarkable.

M. PLANCHON reports a new species of *Cissus* from the interior of Sierra Leone, capable of bearing the winter of Marseilles. Its endurance is a matter of temperament, and a proof of the extent of the scale of resistance to cold and heat which some plants possess, and which often upsets all prevision.

THE JOURNAL OF BOTANY for September gives quite a full account of the life and character of the late Mr. H. C. Watson, the eminent English botanical geographer, who died the 27th of July. The article is accompanied by an excellent portrait.

MR. G. S. JENMAN has described a new tree fern from Jamaica, which he calls *Cyathea monstrabilia.* Its trunk is four or more feet high and three inches in diameter, while the fronds are three or four feet long and 15–20 inches wide.

MR. HENRY M. DOUGLASS, of Richland, N. Y., is publishing a translation of the *Botanische Zeitung* which he calls the *Botanical News.* The subscription price is fixed at $2.50 per year.

MR. L. F. HENNEGUY confirms the observations of Brant that an aqueous solution of aniline brown, known in commerce as Bismarck brown, will give an intense brownish-yellow color to the protoplasm of the infusoria without in any way interfering with their enjoyment of life. The coloration first appears in the vacuoles of the protoplasm, then this latter is itself stained, the nucleus being most generally not at first colored, and so being made more conspicuous. Experiments made on vegetable protoplasm seemed to exhibit the same result.

PROF E. S. BASTIN, of Chicago, has found near Lake Michigan a most curious form ot *Cypripedium spectabile.* A single stem bears two flowers, one normal and the other almost regular. This "monster" had three distinct and equal sepals; three nearly equal petals, shaped like the sepals, but narrower, and with no trace of a "slipper;" ovary not at all twisted; three distinct anthers instead of two; three-lobed stigma. Instead of the triangular fleshy body, heretofore supposed to represent the third stamen, there were two of these bodies alternating with the petals, and if representing stamens at all, they must be an outer whorl. Of course two whorls of stamens are just what we want, for they are more typical than one. This *Cypripedium* seemed to have taken a long stride backwards towards some of its ancestral forms that were regular.

THE SUMMER SCHOOL OF BOTANY in the University of Minnesota, seems to have been a success, about forty teachers having enrolled themselves. Prof. Bessey gives the outline of his laboratory course as follows: I. *General Histology of Plants.*—Protoplasm in hairs and tissues, cells, cell walls and their markings, chlorophyll, starch, plant crystals, parenchyma, collenchyma, sclerenchyma, fibrous tissue, laticiferous tissue, sieve tissue, tracheary tissue, epidermis, stomata, hairs, fibro-vascular bundles. II. *The Structure and Physiology of Cryptogmas.*—(1) The Sexless Plants (Protophyta), Protococcus, Nostoc, Oscillatoria, Rivularia, yeast plant, Bacteria; (2) The Unisexual Plants (Zygosporeæ), Hydrodictyon, Conferva, Desmids, Diatoms, Spirogy ra, Mucor; (3) The Egg-spore Plants (Oosporeæ), Œdogonium, Vaucheria, Peronospora, Cystopus, Fucus; (4) The Red Seaweeds and their allies (Carposporeæ), Podosphæra, Eurotium, Parmelia, Puccinia, Agaricus; (5) The Mosses and their allies (Bryophyta), Marchantia, Mnium; (6) The Ferns and their allies (Pteridophyta), fern prothallia and fruiting, Pteris, Polypodium, Selaginella. III. *The Structure and Physiology of Phanerogams.*—The structure of Gymnosperms; the sexual reproduction of Monocotyledons; the sexual reproduction of Dicotyledons.

Notes.—Those who have had the pleasure of seeing that lovely tree, the *Magnolia grandiflora*, in bloom in its native haunts, and who live north of Maryland, must have ceaseless regret that it is not generally hardy in their district. A few trees live and bloom in sheltered situations above the state mentioned. A single specimen in this city (Wilmington, Delaware) blooms freely nearly every year. Through the kindness of the owner, J. H. Jackson, Esq., I am enabled to give the following record of the period of its flowering for the years mentioned. The dates given are of the first and last flowers and show the *period* of flowering to be much longer than might be supposed; of course much the greater number of flowers appear during the first four weeks.

1873, from June 20 to ________.
1874, " June 22 to August 19.
1875, " June 21 to August 5.
1876, " June 11 to August 10.
1877, " June 11 to August 1.
1878, " May 30 to August 22.
1879, " June 9 to August 17.
1880, " May 28 to ________.

1881, tree survived the excessive cold of last winter and bloomed, but less freely than usual. No record has been kept since the last date mentioned.

THE PENINSULA between Delaware and Chesapeake bays has generally a light, rather thin sandy soil, which does not differ materially from that mostly prevalent in the Atlantic coast region from Long Island southward. Yet it produces some noble forests of both evergreen and deciduous trees. Some of your readers may remember the splendid specimens of black walnut and tulip trees, shown at the Centennial Exhibition by the Delaware State Commission. These were respectively 7 and 9 feet through and were perfectly sound and solid. While in Southern Delaware, some months since, I measured a Cypress (*Taxodium*) stump, 9 feet across. A Post Oak (*Quercus stellata*) measured 16 feet in circumference at 3 feet from the ground. *Pinus Tæda* and *Pinus mitis* attain a height of 100 feet and a girth of 10 to 14 feet. Even *Pinus inops* which is usually considered a low and straggling tree, was seen at least 60 feet in height. Some specimens of *Alnus maritima* (a species perhaps exclusively found in this district) may well rank as trees. Here are measurements of three individuals.